

AMENDMENTS TO THE SPECIFICATION:

Page 1, please add the following new paragraphs before paragraph [0001]:

[0000.2] CROSS-REFERENCE TO RELATED APPLICATIONS

[0000.4] This application is a 35 USC 371 application of PCT/DE 03/02530
filed on July 28, 2003.

[0000.6] BACKGROUND OF THE INVENTION

Please replace paragraph [0002] with the following amended paragraph:

[0002] For introducing fuel into combustion chambers of self-igniting internal combustion engines, both pressure-controlled and stroke-controlled injection systems may be employed. Injection systems that include a high-pressure reservoir have the advantage that the injection pressure can be adapted to the engine load and rpm. To reduce emissions and to attain high specific performance of the engine, a high injection pressure is necessary. Since the pressure level attainable in the high-pressure reservoir by high-pressure fuel pumps is limited for reasons of strength, ~~it is possible,~~ **a pressure booster may be assigned to the fuel injector** to further increase the pressure in fuel injection systems with a high-pressure reservoir, ~~to assign a pressure booster to the fuel injector.~~

Please replace paragraph [0003] with the following amended paragraph:

[0003] **Background of the Invention** **Description of the Prior Art**

Please replace paragraph [0004] with the following amended paragraph:

[0004] German Patent Disclosure DE 101 23 911.4 relates to a fuel injection system with a pressure boosting system and to a pressure boosting system. ~~The fuel injection system for~~ internal combustion engines, **and** includes a fuel injector that can be supplied from a high-pressure fuel source. Between the fuel injector and the high-pressure fuel source, there is a pressure boosting system that includes a movable piston. The movable piston divides a

chamber connected to the high-pressure fuel source from both a high-pressure chamber, communicating with the injector, and a back chamber. The high-pressure chamber of the pressure boosting system can be made to communicate with the back chamber via a fuel line. The fuel line includes a valve which is embodied in particular as a check valve, so that a return flow of fuel from the high-pressure chamber into the back chamber can be prevented. In this embodiment, both the pressure boosting system and a fuel injector are each actuated via a separate 2/2-way valve.

Page 2, please replace paragraph [0005] with the following amended paragraph:

[0005] Summary of the Invention

SUMMARY OF THE INVENTION

Please replace paragraph [0006] with the following amended paragraph:

[0006] With the embodiment proposed according to the invention, a pressure-boosted injection system can be furnished whose triggering is effected via a simple 2/2-way magnet valve and which has two simple, hydraulically actuated check valves for controlling the injection valve member and for refilling the pressure boosting system. The injection system proposed according to the invention can be employed wherever either shaping of the injection course is unnecessary, or the expense for it appears too high compared to the attainable usefulness in the internal combustion engine. When the embodiment proposed according to the invention is used, one magnet valve per injector, including the requisite end stage in the control unit, can be dispensed with without having to sacrifice the advantages of pressure boosting at the fuel injector. One application would be ~~=to name one example=~~ using exhaust gas recirculation means in internal combustion engines.

Please replace paragraph [0008] with the following amended paragraph:

[0008] ~~Drawing~~ **BRIEF DESCRIPTION OF THE DRAWINGS**

Please replace paragraph [0009] with the following amended paragraph:

[0009] The invention will be described in further detail below in conjunction with the ~~drawing~~: drawings, in which:

Please delete paragraph [0010].

Page 3, please replace paragraph [0011] with the following amended paragraph:

[0011] Fig. 1[[, a]] **is a schematic illustration, partially in section, of a prior art** fuel injection system in which one separate 2/2-way valve is used for triggering the pressure booster and for triggering the fuel injector;

Please replace paragraph [0012] with the following amended paragraph:

[0012] Fig. 2[[, the]] **is a** fuel injection system ~~proposed~~ according to the invention, with a 2/2-way valve, a compensation valve, and a filling valve, in the position of repose;

Please replace paragraph [0018] with the following amended paragraph:

[0018] ~~Variant Embodiments~~

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please delete paragraph [0019].

Page 5, please delete paragraph [0023].

Please replace paragraph [0024] with the following amended paragraph:

[0024] The fuel injection system 1 ~~proposed~~ according to the invention, **shown in Fig. 2,** includes the pressure boosting system 2, the fuel injector 3, and the 2/2-way valve 4 for actuating the pressure boosting system 2. The booster piston 5 which divides the work

chamber 9 of the pressure boosting system 2 from the differential pressure chamber 10 (back chamber) and the high-pressure chamber 11 of the pressure boosting system 2 is received inside the pressure boosting system 2. The work chamber 9 is acted upon by fuel at high pressure via a high- pressure reservoir 21 (common rail). The booster piston 5 of the pressure boosting system 2 is acted upon by a restoring spring 20. An overflow line 24 extends from the differential pressure chamber 10 (back chamber) of the pressure boosting system 2, and by way of it the differential pressure chamber 10 of the pressure boosting system 2 and the control chamber 13 of the fuel injector 3 communicate hydraulically. The spring element 17 that acts upon the upper face end of the injection valve member 14, which can for instance be embodied as a nozzle needle, is received inside the control chamber 13 of the fuel injector 3. The differential surface area on the injection valve member 14 is in communication with a return 23 on the low side. The injection valve member 14 of the fuel injector 3 is surrounded by the nozzle chamber 15. A differential surface area 19 is embodied on the injection valve member 14 and may for instance be in the form of a pressure shoulder. In the position of repose, shown in Fig. 2, of the fuel injection system 1 proposed according to the invention, the injection valve member 14 closes a seat 38 toward the combustion chamber, so that via the closed injection openings 18, no fuel can be injected into the combustion chamber of a self-igniting internal combustion engine.

Page 6, please replace paragraph [0026] with the following amended paragraph:

[0026] The pressure boosting system 2 includes the high-pressure chamber 11, which acts on the nozzle chamber 15 of the fuel injector 3 via a nozzle chamber inlet 37. A flow connection 25 also branches off from the high-pressure chamber 11 of the pressure boosting system 2. The flow connection 25 extends both to a compensation valve 26, embodied as a

hydraulically actuated check valve, and to a filling valve 31, likewise embodied as a hydraulically actuated check valve. Via the flow connection 25, one end face 28 of the compensation valve 26 and one end face 35 of the filling valve 31 are acted upon hydraulically.

Page 9, please replace paragraph [0034] with the following amended paragraph:

[0034] If the 2/2-way valve 4 comes to be without current, the valve body 39 of the 2/2-way valve 4 moves into its seat 40 and closes the differential pressure chamber 10 (back chamber) of the pressure boosting system 2. Because ~~of the~~ ~~in~~ the differential pressure chamber 10 (back chamber) ~~by the outflow is~~ now closed via the 2/2-way valve 4, pressure builds up in the differential pressure chamber 10 (back chamber), and the booster piston 5 is stopped in its downward motion. Because of the spring element 17 received in the control chamber 13 and because of the increasing pressure in the course of the refilling in the differential pressure chamber 10 (back chamber) and in the control chamber 13 brought about by the opening compensation valve 26, the injection valve member 14 is moved back into its seat 38 toward the combustion chamber. Thus the injection openings 18 on the end of the fuel injector 3 toward the combustion chamber are closed; the injection of fuel is terminated. The hydraulic forces prevailing in the control chamber 13 and the closing force exerted via the spring element 17 on the upper face end of the injection valve member 14 move the injection valve member 14 into the closing position, back into the seat 38 toward the combustion chamber.

Page 11, please replace paragraph [0039] with the following amended paragraph:

[0039] Via the filling valve 31, opened at its seat 32 as shown in Fig. 5, fuel flows from the work chamber 9 of the pressure boosting system 2 into the chamber 36 surrounding the valve

body 33 of the filling valve 31 and from there on into the high-pressure chamber 11 of the pressure boosting system 2, via the flow connection [[29]] 25. If substantially the same pressure prevails in both the high-pressure chamber 11 and the work chamber 9 of the pressure boosting system 2, then the valve body 33, because of the spring element 34 acting on its face end 35, is pressed into its seat 32 and prevents the further inflow of fuel into the filling valve 31. This situation shown in Fig. 6 is equivalent to the state of repose, shown in Fig. 2, of the fuel injection system 1 proposed according to the invention.

Page 13, please add the following new paragraph after paragraph [0044]:

[0045] The foregoing relates to a preferred exemplary embodiment of the invention, it being understood that other variants and embodiments thereof are possible within the spirit and scope of the invention, the latter being defined by the appended claims.

Please delete pages 14 and 15.